

## Inactive manual articulators in signed languages

This paper will address a notable modality difference in the perception of phonetic articulations in sign vs. speech: the fact that we can see the manual articulators (almost) all of the time in signed languages, whereas in spoken languages we cannot directly see all of the vocal articulators all of the time. Indeed, it is often claimed that only about 25% of the phonemic distinctions in languages like English and Dutch can be perceived visually, even though it is known that the distinctions that are visible can influence speech perception (McGurk & MacDonald 1976). The consequence is that we can also perceive the sign articulators in their rest state, or more precisely, when they are not active in the articulation of phonologically specified material. The central question that this paper aims to address is what types of information can be derived from these rest states. This is an important question because this information is also available to the sign perceiver, and could thus contribute to the perception and recognition processes in signed languages. This study aims to provide a first look at the issues involved, and will not present any perceptual evidence for the actual use of information about inactive articulators.

Most if not all non-manual articulators have standard rest positions that can in principle be maintained during many manual signs: it is the absence of visible muscle tension in the face other than that to keep the eye lids up and the lower jaw closed; the head and upper body are upright in their default position. This is quite different for the manual articulators. In a fully relaxed state and standing upright, the fingers, hands and arms would be hanging beside the upper body, the fingers slightly curved, the forearm half pronated. When seated, the hands often rest on the lap of signers. These 'full-rest' positions and other states of the articulators have been investigated in the study of turn-taking in American Sign Language (Baker 1977) and in deaf-blind interaction in Finland (Mesch 2001), but not as an observable phenomenon in *any* sign language utterance.

Two different articulators will be investigated in some detail here: unselected fingers in handshapes and the non-dominant hand. In many signs, the handshape has a subset of fingers that are relevant or 'selected': they can be in a certain configuration (such as extended or curved), they can contact the location, and they can move. The other fingers are 'unselected': they are not phonologically specified according to most phonological models. Their phonetic configuration is however always visible, and therefore the question arises what their state is in actual realisations of signs in context. Secondly, there are many signs in which only one hand is lexically specified; the other hand is thus likely to be inactive during the realisation of these signs (but see below on other linguistic activities of the non-dominant hand).

It is demonstrated that these articulators do not automatically assume a default position and argued that we can observe the spreading of phonological features in such cases. These cases of feature spreading can potentially inform us about the size of phonological domains such as the prosodic word and the phonological phrase, just as the prolonged presence of all of the final state of the non-dominant hand can be used as evidence for prosodic structure in sign language (Sandler 1999abc).

The special affordances of the visual modality in combination with the complex manual articulators do not necessarily lead to a different view on signed than on spoken languages, but they do call for a consideration of the ways in which the 'non-articulations' discussed here may be informative for our understanding of prosody and language processing of signed languages. This requires studies at the interface of phonetics and phonology that can build on the Laboratory Phonology tradition for spoken language research.

### References

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